

SAE 8620 / 805M20

20NiCrMo2-2 1.6523 SAE 8620

MATERIAL DATA SHEET

Parkside Steel

(Stockholders) Ltd

ISO 9001 | BSI FS 86692

Est. 1977 | Co. 01325509

01623 687 660

OVERVIEW

SAE 8620 is the global automotive standard for case hardening steel, specified on virtually every major automotive gear drawing worldwide. After carburising and hardening it achieves a hard case (58-62 HRC) with a tough ductile Ni-Cr-Mo core. Balanced alloy composition provides reliable case depths and predictable core properties.

TYPICAL APPLICATIONS

- Automotive gearing (all types)
- Motorsport transmission
- Agricultural gearboxes
- Industrial gearing
- Pinions and ring gears
- Case-hardened shafts

SUPPLY & PROCESSING

Supply: Bright round bar 16-100mm. Black round bar.
Condition: Normalised. Carburise and harden after machining.
Weldability: Good. Preheat 150C on sections over 25mm.
Machinability: Good. 70-100 m/min carbide.
Certification: 2.2 Test Report standard. 3.1 on request.

GRADE EQUIVALENTS

Standard	Designation
BS EN 10084:2008	20NiCrMo2-2 / 1.6523
BS 970:1991 (withdrawn)	805M20
AISI/SAE	8620 / 8617
DIN	21NiCrMo2 / 1.6523
JIS	SNCM220

CHEMICAL COMPOSITION (% by weight)

Designation	C	Si	Mn	P max	S max	Cr	Ni	Mo
805M20	0.17–0.23	0.10–0.35	0.60–0.95	0.04	0.04	0.35–0.65	0.35–0.75	0.15–0.25
20NiCrMo2-2	0.17–0.23	0.17–0.37	0.65–0.95	0.025	0.035	0.35–0.65	0.40–0.70	0.15–0.25

MECHANICAL PROPERTIES

Condition	Core Tensile (N/mm ²)	Core Yield (N/mm ²)	Case HRC	Core HB
After case hardening	~620–800	~375–550	58–62	~180–235

Indicative values. Properties vary by section size and heat treatment condition. Confirm with Parkside Steel.

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